

Chapter 7. Finance Planning Framework *[Update 2013 Finance Caucus DRAFT]*

About This Chapter

The purpose of this chapter is to: (1) create a common and comprehensive understanding of current [finance] conditions as well as available finance mechanisms; (2) frame data, information and stakeholder input such that it yields effective finance recommendations in Chapter 8 – Implementation Plan. This chapter describes strategies for meeting the financial demands from improvements and programs for flood protection, water supply, and environmental needs. This chapter contains a description of historical Federal, State, and local IWM investments as context for planning future State IWM investment. It also includes a variety of data and information to provide an understanding of how current conditions came to be, both in a historical management and finance context (e.g. debt levels, funding sources, administrative constraints, etc). This chapter contains a summary of the history of water management in California, the corresponding history of funding, and data and discussion of integrated water management expenditures by State, Federal, and local agencies in California. This provides the background that must be understood prior to making future decisions.

This chapter also contains a discussion of the typical funding mechanisms used during the past decade. It then discusses the State's role in water financing, including the principles developed in the 2009 CWP. New financing mechanisms are reviewed, including those that are currently being proposed in Congress. The demand for funding is briefly discussed. The chapter concludes with a discussion on how funding needs to be prioritized. Chapter 8 - *Implementation Plan* includes a finance objective and recommends implementation of several actions to achieve the objective. Note to Reviewer: The Finance Planning Storyboard will be described in this chapter. This will include a mapping of the storyboard components throughout the Update 2013 (e.g. Component 5 - Role of State Government located in Chapter 3 of Volume 1.)

Resource Management and Funding from 1850 - Present

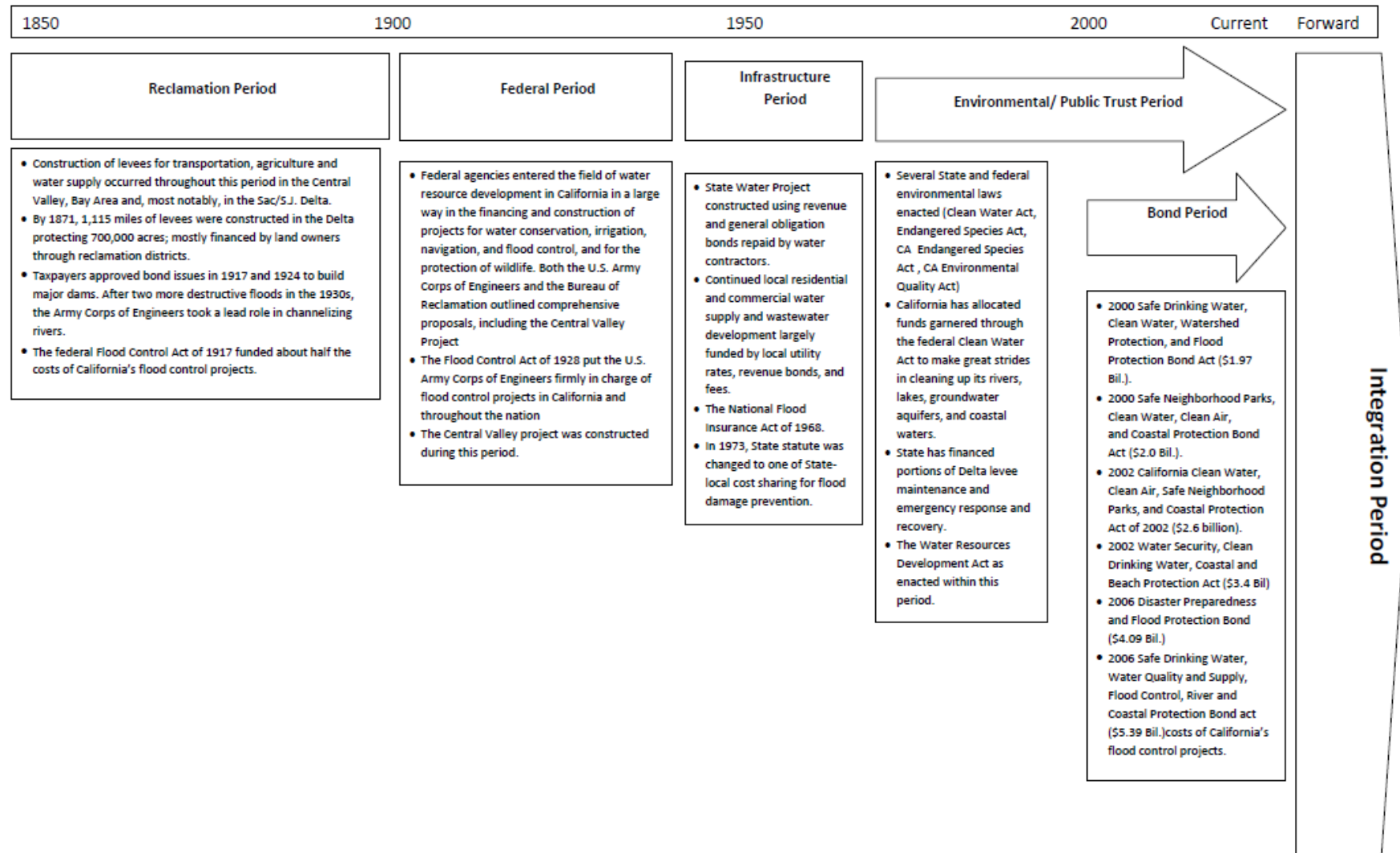
The purpose of this section is to provide necessary context for future IWM decisions by describing the evolution of water, flood and environmental management that shaped where we are today. This section provides an overview of the history of water management institutions and financing in California from 1850 to present. This history helps put the subsequent discussion and data in context by considering historical water management in California. The next section takes a closer look at the history of water management financing strategies.

The history of IWM financing is summarized by dividing the time period up into five historical periods, described as the Reclamation, Federal, Infrastructure, Environmental, and Bond Periods. Each of these periods relied on a different water management financing strategy which, when taken with the earlier discussion, outlines the history of water management in California. Figure 1 summarizes the key events during these time periods.

- The Reclamation period was characterized by land reclamation and flood control projects. The majority of initial projects were funded by individual land owners and private companies and central management of water resources was limited. Federal funding in 1917 and State bonds in 1917 and 1924 helped finance the flood infrastructure development.
- Flood events across the U.S. in the late 1920's increased public demand for Federal involvement in flood management. The U.S. Army Corps of Engineers assumed responsibility for flood control projects in California which increased Federal funding in the state. The Federal period was a response to significant flood events in the Central Valley, and other parts of the U.S. The Federal government stepped in and increased financing efforts and tasked the U.S. Army Corps of Engineers with flood control efforts in California. The federal government was and remains a primary source of flood management funding.
- The Infrastructure period saw increased investment by the State and increased focus on State-local cost sharing. The SWP was constructed during this period which was largely financed by G.O. and revenue bonds. Today the SWP accounts for just under \$1 billion in annual expenditures by the State.
- The Environmental and Public Trust period is characterized by an increased focus on environmental impacts of water resource projects. Rapid growth of California's water infrastructure occurred between the 1950's and 1970 with little attention paid to environmental impacts of projects. A general focus on environmental effects across the Country, on a range of projects, put increased focus on new water infrastructure projects. This coincided with the Clean Water Act of 1972 and a series of related legislation, such as the California Environmental Quality Act, which were designed to include environmental concerns in water management and funding. Project development slowed but was still typically financed by State and local agencies.
- The Current period is characterized as the bond period because IWM funding is largely tied to State G.O. bonds. Over \$23 billion in water related G.O. bonds have been authorized in California since the year 2000. By 2011, almost 20 percent of total authorized State G.O. bonds were for water management.

Figure 1

Defining Events, Trends and Drivers of Historical Resource Management Funding In California (1850 – Present)



IWM Expenditures in California

The purpose of this section is to provide context for IWM decisions by presenting a high level description of historical funding that reflects the full scope of integrated water management expenditures. Figure 2 illustrates the recent history of State and Federal IWM expenditures in California. Federal agency data are only available for USBR, USACE, and EPA for the 1985-2010 time period and a sub-set of State agencies are included. As such, the data in Figure 2 should be viewed as a lower bound estimate State and Federal water management expenditures in California between 1985 and 2010.

State and Federal expenditures on IWM were about equal in 1985, at around \$500 million per year. In 1986 the State passed Propositions 44 and 50 which provided \$290 million and \$190 million towards IWM efforts, respectively. A steady stream of smaller bonds followed, leading up to passage of Propositions 13 through 1E in the 2000's. During this period, annual funding levels have also become increasingly variable and unpredictable.

Historically, the State has provided the majority of expenditures. Expenditures spiked in FY 2001 in response to passage of Propositions 12 and 13. In 2006 Propositions 1E and 84 passed, leading to an increase in expenditures in FY 2007 through 2010. These data also include some increased expenditures due to increased homeland security funding following the 9/11 attacks. This can be seen as a small uptick in Federal expenditures in FY 2002. Additionally, federal expenditures increased with the American Recovery and Reinvestment Act of 2009 (ARRA) funding, shown in FY 2009 and 2010.

Notes on Expenditure Data.

IWM expenditure data across State, Federal, and local agencies were compiled from various sources. It is important to keep in mind that it is difficult to identify and homogenize IWM expenditure data due to the number and different types of agencies and varying reporting metrics. Agencies report financial information in different ways. For example, some agencies include planning as part of project capital cost, whereas other agencies include it with O&M expenses. Comprehensive sets of data also were available for different periods; therefore, this chapter reviews data over the last 11 years (from 2000 through 2010). Additionally, the introduction section includes a summary of total State and Federal IWM expenditures between 1985 and 2010. These data include different agencies than the more disaggregate 2000-2010 expenditure data in the subsequent sections.

All dollar values have been adjusted to 2010 values with the gross domestic product (GDP) Implicit Price Deflator.¹ The Implicit Price Deflator is a measure of the level of prices of all new, domestically produced, final goods and services in an economy—in this case for the year 2010. The level of aggregation reported in this report depends on the format of the source data. Financial data are typically included in categories that are relevant for the agency but might not suit the purposes of this chapter.

Another issue that should be noted about the data is the Federal Fiscal Year (FY) is from October to October of each year but State and most local agency budgets are from July to July. No reapportionment of the data occurred to address this issue because the data were not refined enough to break out budget expenditures to account for this inconsistency.

Figure 2 Estimated State and Federal IWM Expenditures (in millions) 1985 – 2010.

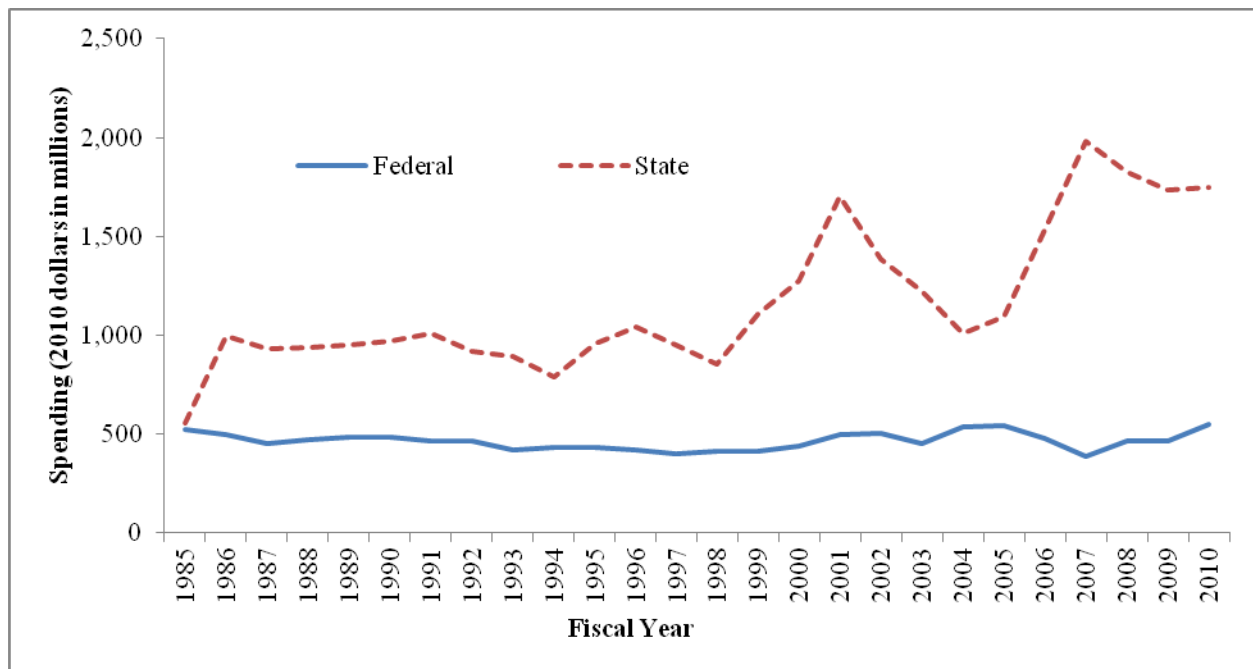


Figure notes: Federal includes USBR, USACE, and EPA only.

State, Federal, and Local Total IWM Expenditures

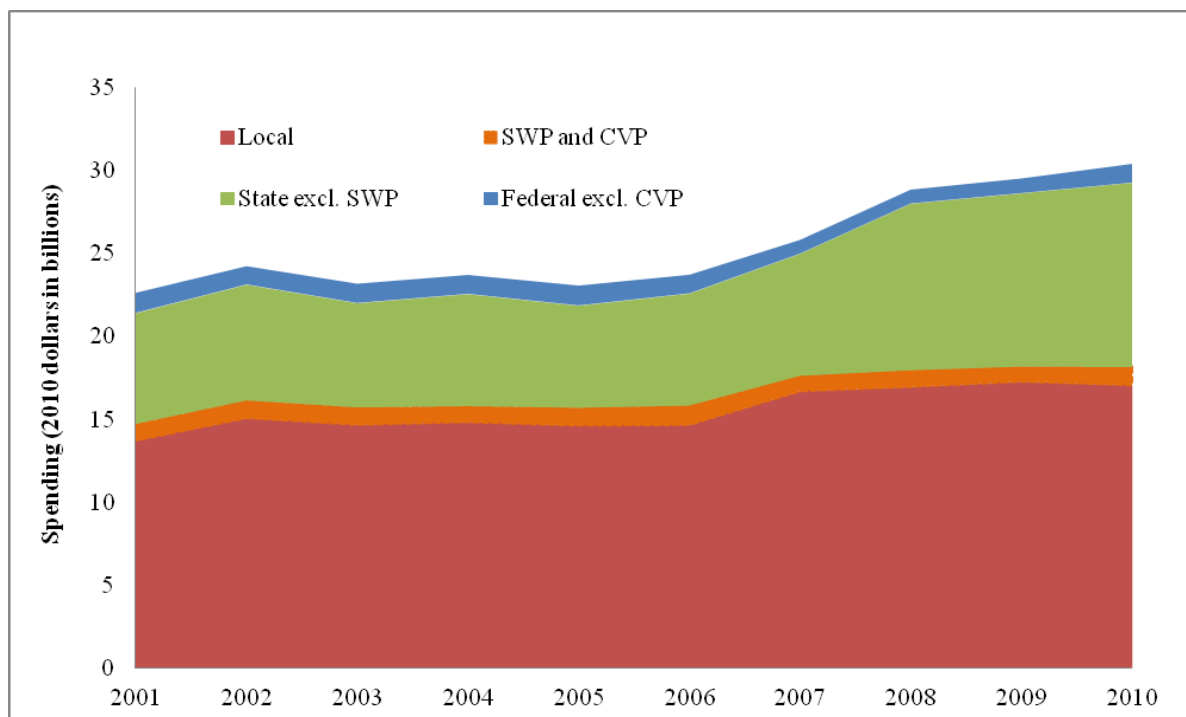
The purpose of this section is to provide context for IWM decisions by presenting detailed descriptions of historical funding that reflect the full scope of integrated water management expenditures. This section contains data on historical IWM expenditures between 2000 and 2010, across State, Federal, and local agencies. Data in this section include 28 relevant State agencies, and local (cities, counties, and special districts) expenditures between 2000 and 2010.

Figure 3 illustrates historical total IWM expenditures by state, federal, and local agencies in California. SWP and CVP expenditures are included as a separate category and account for around \$1 billion in any given year. Expenditures on IWM have been increasing in recent years due to the passage of Propositions 1E and 84 and, prior to that, Propositions 40 and 50.

State expenditures average \$8.7 billion per year with a peak of just over \$12 billion in FY 2010. This is largely due to bond money from continued appropriations of Propositions 1E and 84. Federal expenditures average \$1.2 billion per year with a peak of \$1.4 billion in FY 2001 and again in FY 2005. Local expenditures comprise the largest component averaging \$15.5 billion per year. Local expenditures peaked at just over \$17 billion in FY 2010. This is likely due to increased subventions and loans from DWR due to Proposition 1E and 84.

A number of interesting trends appear in the data. Total expenditures on IWM in California have been increasing in recent years. This is particularly evident post-FY 2006 with Proposition 1E and 84 money. Federal investment is shrinking relative to state and local investment, as shown by the shrinking relative proportion of Federal to State and local expenditures.

Figure 3 Estimated State, Local, and Federal IWM Expenditures (in billions)

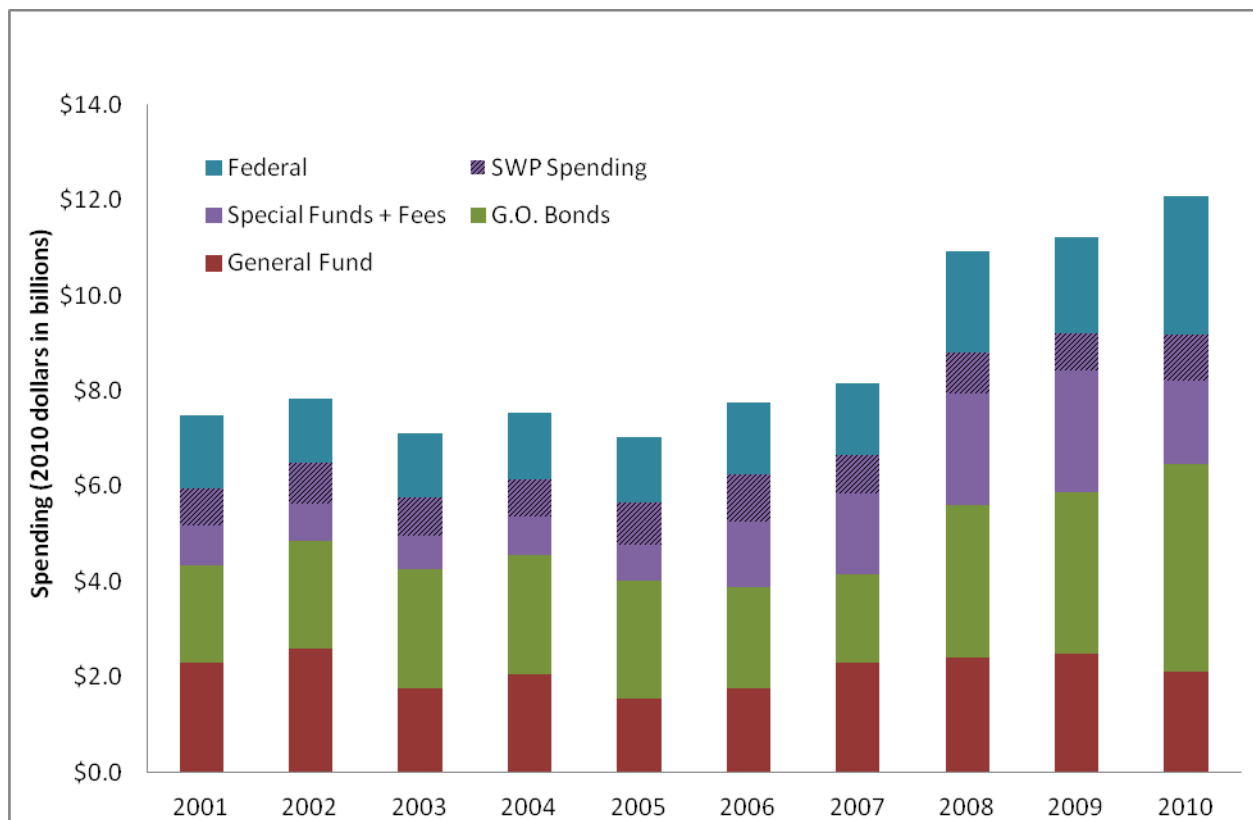


State Expenditures 2000-2010

The purpose of this section is to provide a reference point for IWM funding by quantifying and characterizing recent and current levels of State government IWM expenditures by funding source. This section summarizes data on historical IWM expenditures by State agencies between 2000 and 2010. State agencies include DWR and 27 other state agencies, summarized in Section 8. Data were compiled by DWR and include expenditures determined to be related to IWM expenditures.

Figure 4 illustrates the history of state expenditures on IWM. Total state expenditures averaged \$8.7 billion per year between FY 2001 and FY 2010. This includes average yearly expenditures of \$2.9, \$1.7, \$4.3, and \$2.1 billion in federal, special funds, G.O. Bonds, and the General Fund, respectively. In addition, average annual SWP expenditures are just under \$1 billion. The proportion of total expenditures from G.O. Bonds increases, starting in FY 2008, due to bond money from Propositions 1E and 84.

Figure 4 Estimated State IWM Expenditures (in billions) by source



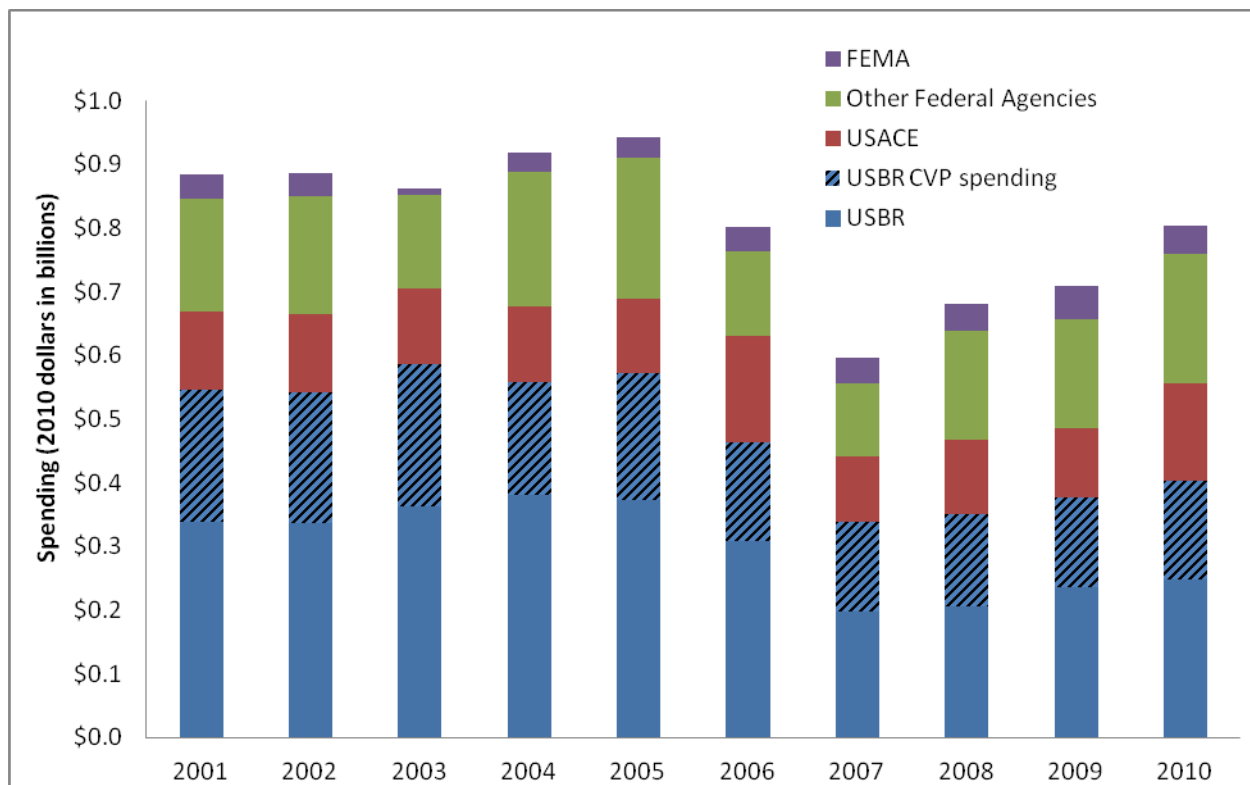
Federal Expenditures 2000-2010

The purpose of this section is to provide a reference point for future IWM funding by quantifying and characterizing recent and current levels of federal government IWM expenditures in California. This section summarizes data on historical IWM expenditures by Federal agencies between 2000 and 2010. Federal agencies include USBR, USACE, FEMA, USDA Forest Service, and other federal agencies. Other federal agencies include EPA, NOAA, NRCS, Geological Survey, and the Fish and Wildlife Service.. Data include expenditures determined to be related to IWM activities.

Federal investment has historically been the primary source of funding for flood management. The Central Valley Project is managed by the U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers is in charge of flood control projects. Reclamation CVP expenditures are relatively constant, under \$500 million per year.

Figure 5 illustrates the history of Federal expenditures on IWM in California. Total Federal expenditures averaged \$0.87 billion per year between FY 2001 and FY 2010. This includes average yearly expenditures of \$0.04, \$0.14, \$0.12, and \$0.47 billion in FEMA, other federal agencies, USACE, and USBR, respectively. USBR includes annual CVP expenditures of \$0.18 billion. ARRA funding in FY 2009 and 2010 can be seen with the increase in other Federal agency expenditures as well as Reclamation expenditures.

Figure 5 Estimated Federal IWM Expenditures (in billions) by agency



FEMA is the disaster response agency of the Federal government. As such, FEMA provides State and local governments with funding for emergency preparedness programs in the form of Non-Disaster

Grants. These funds are used to enhance the capacity of State and local emergency responders to prevent, respond to, and recover from a natural or man-made emergency. FEMA programs provide assistance for issues related to flood management, including the Emergency Management Performance Grants Program and the Buffer Zone Protection Program. These grants help fund planning efforts. FEMA also has disaster assistance and grants available for emergency operations centers. FEMA expenditures are a small portion of total Federal IWM expenditures in California, accounting for an average of \$4 million per year.

The USACE has been an important force in implementing flood management projects across California. In fact, most major flood management projects that have been implemented have been projects in which USACE was a partner. Hundreds of projects have been cost-shared by the USACE in California. Historically, DWR and the USACE have partnered on projects in the Central Valley. USCE expenditures on IWM in California average \$120 million per year between FY 2001 and 2010.

Reclamation's primary responsibility is to manage, develop, and protect water and related resources in an environmentally and economically sound manner. Reclamation was responsible for the development of a number of canals, dams, and reservoirs in California, and as a result, Reclamation has become responsible for water and flood management in parts of California. Reclamation's primary responsibility is not flood management, but it is involved in systems that are part of flood management systems, such as the Central Valley Project. Reclamation has two regional offices that are responsible for projects in California—the Mid-Pacific Region, which is responsible for projects in northern California, and the Lower-Colorado Region, which is responsible for projects in southern California. Reclamation expenditures are around \$500 million per year, of which approximately \$200 million is for the CVP.

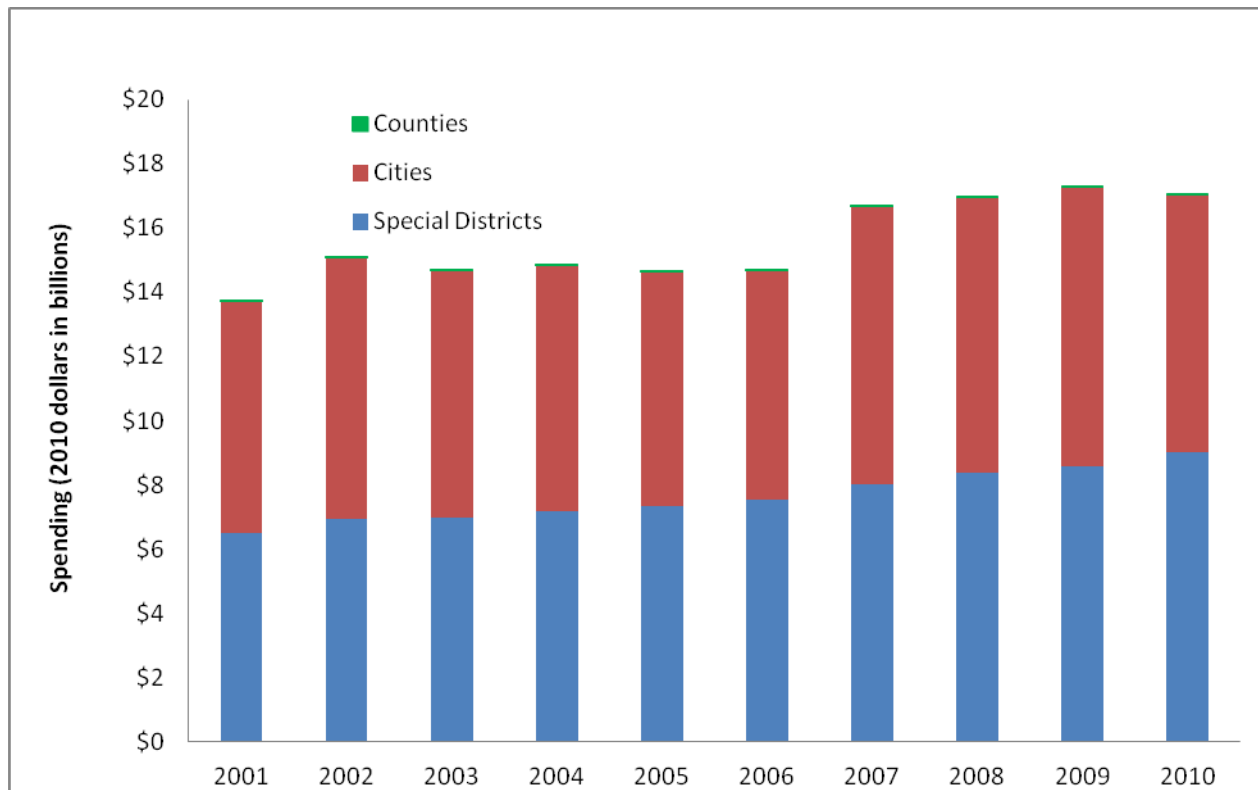
Expenditures by these agencies span a range of IWM activities related to habitat restoration and other water related activities. These agencies were involved with the CalFed program.

Local Expenditures 2000-2010

The purpose of this section is to provide a reference point for future IWM funding by quantifying and characterizing [within the scope of IWM] recent and current levels of local government expenditures. This section contains data on historical IWM expenditures by local agencies between 2000 and 2010. Local governance of IWM throughout California is handled by a complex array of agencies that differ by governing authority, and other factors. Local agency expenditures account for the largest proportion of IWM expenditures in California. Local investment remains the primary source of funding for water supply.

Figure 6 illustrates estimated IWM expenditures by local agencies including cities, counties and special districts. County expenditures averaged \$10 million per year between FY 2001 and 2010. Special districts and cities account for the largest proportion of local IWM expenditures, averaging \$7.6 and \$7.8 billion per year, respectively. Of the \$7.6 billion average yearly expenditures by special districts, just over \$6 billion is attributable to water enterprise activities. Water enterprise includes districts and water companies that operate as a business and charge a fee for services. Of the \$7.8 billion expenditures per year by cities, around \$5 billion per year is attributable to water and sewer enterprise activities.

Figure 6 Estimated Local IWM Expenditures (in billions) by agency



IWM Funding in California

The purpose of this section is to provide insights into recent and current IWM funding sources and magnitudes with an emphasis on general obligation bond authorizations and debt levels. This section contains data on historical integrated water management funding in California. Particular attention is paid to water bonds since these have become a significant source of funding in recent years. The data summarized in this section were collected to help inform future funding strategies.

There are two basic sources of funding: taxes and fees. To a lesser extent, there are also some direct investments made by private entities and some donations by nongovernmental organizations. Urban water agencies typically finance water management through user fees in the form of monthly/bi-monthly water bills. Reclamation districts also collect user fees to finance levees and other water management projects. State taxes support water management through the General Fund and other special funds. General Obligation bonds typically support capital outlay for projects, mandated by Section 16727 of the Government Code, but are allowed to include administrative costs associated with new projects.

For any given year there are essentially two funding strategies: cash on hand and borrowing. Cash on hand is money directly available in funds for appropriation in a given year. Borrowing includes short-term options like commercial paper and longer-term debt like G.O. bonds. It is important to note that the spending data, summarized in subsequent sections, does not capture the cost of borrowing. Furthermore, spending source categories may appear to overcomplicate what are essentially the only two revenue sources, regardless of funding construct – taxes or fees. Debt service costs for G.O. bonds are summarized in this section.

California Water Bonds

This section summarizes data for California water bonds issued between 1970 and present. This section also includes a summary of other G.O. bond debt, including schools and other infrastructure, in order to put the level of water bond debt into context. Water related bonds make up a larger portion of total bond debt in recent years. Revenue bonds are also an important source of financing for capital projects, which are not supported by the General Fund and are generally used by local agencies, but are not included in this section summary. The general trend shows an increase in G.O. bond financing of water projects and this is increasing as a portion of total G.O. bonds in the State.

Table 1 summarizes water management related bonds that were passed in California. In constant 2010 dollars, a total of \$32.4 billion in water bonds have passed in California since 1970. Of this \$32.4 billion, \$23.2 billion was passed since 2000. In other words, 71% of water bonds passed in California have been since the year 2000. This emphasizes the increased reliance on bonds for financing water infrastructure. Accordingly, the cost of bond debt service has been increasing, from around 8 percent in FY 2001 to almost 36 percent in FY 2010 of General Fund spending for resources and environmental programs. The debt-service ratio (ratio of debt service to annual revenues) is near 6 percent as of FY 2010.

Table 1 California Water Bonds from 1970 to Present

| Year | Title | Base Amount (millions) | In 2010 Dollars (millions) |
|-------------|--|-----------------------------------|---------------------------------------|
| 1970 | Clean Water Bond Law of 1970 (Prop. 1) | 250 | 1,504 |
| 1974 | Clean Water Bond Law of 1974 (Prop. 2) | 250 | 1,028 |
| 1976 | California Safe Drinking Water Bond Law of 1976 (Prop. 3) | 175 | 606 |
| 1978 | Clean Water and Water Conservation Bond Law of 1978 (Prop. 2) | 375 | 1,123 |
| 1982 | Lake Tahoe Acquisitions Bond Act (Prop. 4) | 85 | 185 |
| 1984 | California Safe Drinking Water Bond Law of 1984 (Prop. 25) | 75 | 150 |
| 1984 | Clean Water Bond Law of 1984 (Prop. 28) | 325 | 651 |
| 1984 | Fish and Wildlife Habitat Enhancement Act of 1984 (Prop. 19) | 85 | 170 |
| 1986 | Water Conservation and Water Quality Bond Law of 1986 (Prop. 44) | 150 | 290 |
| 1986 | California Safe Drinking Water Bond Law of 1986 (Prop. 55) | 100 | 193 |
| 1988 | California Safe Drinking Water Bond Law of 1988 (Prop. 81) | 75 | 138 |
| 1988 | California Wildlife, Coastal, and Park Land Conservation Act (Prop. 70) | 776 | 1,427 |
| 1988 | Water Conservation Bond Law of 1988 (Prop. 82) | 60 | 110 |
| 1988 | Clean Water and Water Reclamation Bond Law of 1988 (Prop. 83) | 65 | 120 |
| 1996 | Safe, Clean, Reliable Water Supply Act (Prop. 204) | 995 | 1,471 |
| 2000 | Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act (Prop. 13) | 1,970 | 2,632 |
| 2000 | Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (Prop. 12) | 2,100 | 2,805 |
| 2002 | California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002 (Prop. 40) | 2,600 | 3,305 |
| 2002 | Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Prop. 50) | 3,440 | 4,372 |
| 2006 | Disaster Preparedness and Flood Protection Bond Act of 2006 (Prop. 1E) | 4,090 | 4,385 |
| 2006 | Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Prop. 84) | 5,388 | 5,777 |

State G.O. bonds have become an important source of water and flood management funding. However, bond financing is a lumpy source of funding due to the discrete nature of bond approval and sale. This raises questions about the future sustainability of bond financing for water projects. Table 2 shows total authorized state G.O. bonds as of 2005 and 2011. In 1999 total water bonds were \$3.8 billion, accounting for approximately 10 percent of total authorized State bonds. This increased to \$22.9 billion by 2011 or 18 percent of total authorized bonds, largely due to propositions 1E and 84. Current G.O. bonds are expected to be fully allocated by the year 2018.

Table 2 Total Authorized G.O. Bond debt in California (in billions)

| Category | 1999 | 2005 | 2011 |
|-----------------------------|-----------|-----------|-----------|
| Miscellaneous | \$1.7 | \$2.5 | \$3.3 |
| Correctional | \$4.1 | \$4.1 | \$2.8 |
| Integrated Water Management | \$3.8 | \$14.0 | \$22.9 |
| Transportation | \$5.6 | \$7.2 | \$40.0 |
| Education | \$22.4 | \$51.1 | \$58.6 |
| Total | \$37.7 | \$78.9 | \$127.6 |
| Per Capita | \$1,127.2 | \$2,191.9 | \$3,407.9 |

Figure 7 illustrates the time series of outstanding G.O. for water related activities, including flood management. Annual debt service for outstanding water bonds is approaching \$80 per household as water bonds make up a larger proportion of flood and water funding. Total state annual debt service is \$365 per household. As previously discussed, the debt service ratio for water bonds is around 6 percent. Currently authorized G.O. bonds and federal funding accounted for approximately two-thirds of total water management expenditures in FY 2012. State bonds have provided a significant source of water and flood management funding in California in recent years.

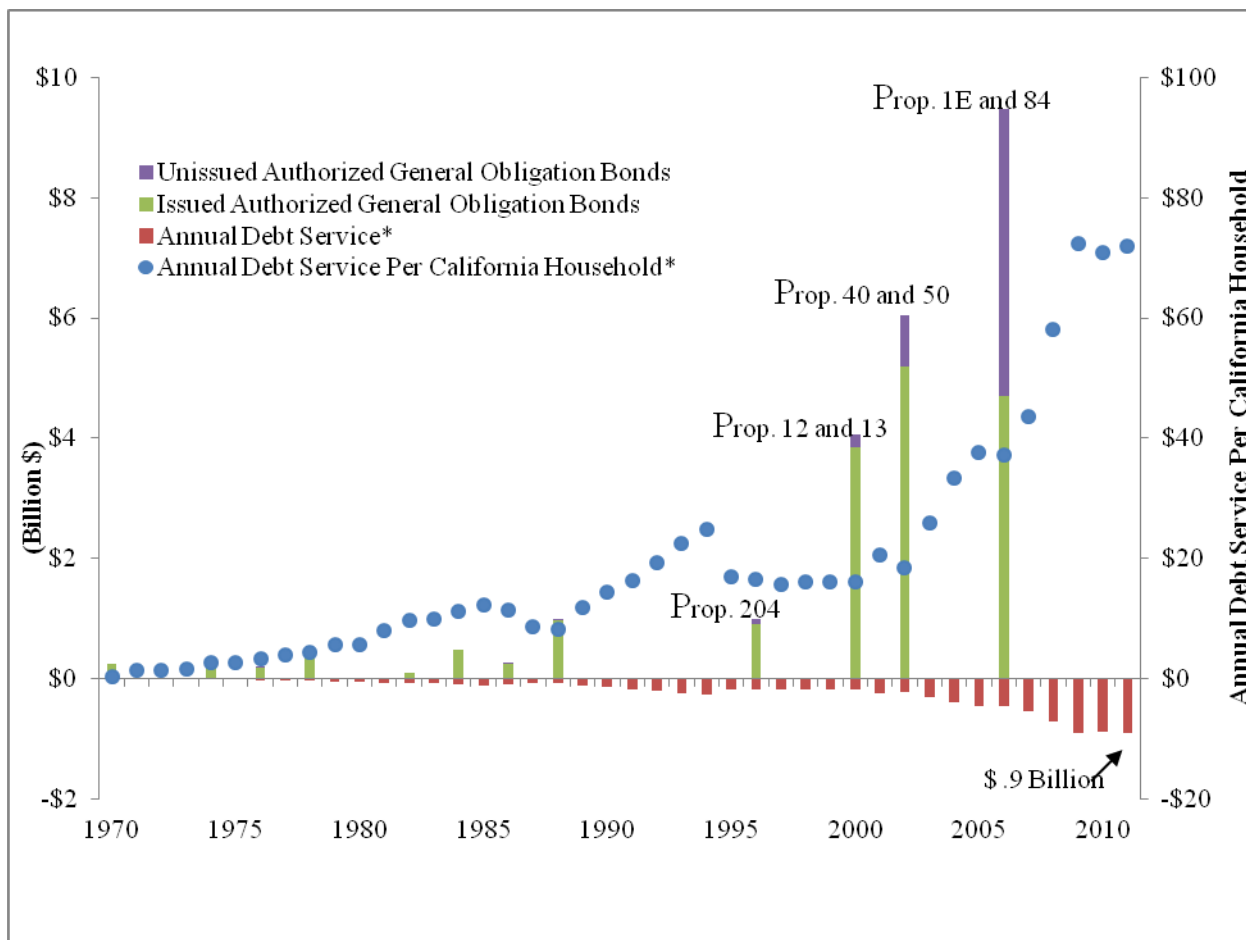
Figure 7 General Obligation Water Bond History, 1970-2012

Figure notes: Debt service is applicable to issued G.O. bonds only. Data compiled from California Department of Finance.

Very little of the total state IWM funding allows discretion or flexibility. Bond and legislative language designates funding purposes. G.O. bonds backed by property taxes and the General Fund are required to be used for capital projects. Revenue and lease-revenue bonds, typically used by local agencies, offer more flexibility. In general, the discrete nature of bond money makes this financing source better suited for one-time investments.

Water related annual bond debt service is close to an all time high at \$72 per household, as shown in Figure 7. Including other bonds, total state annual bond service is close to an all time high at \$365 per household. The current political climate is not conducive to passage of additional G.O. bonds. This increases pressure on developing alternative financing strategies that capitalize on local, State, and Federal cost sharing and integrated management.

Traditional Water Financing Mechanisms

The purpose of this section is to explore the potential use of existing financing alternatives by providing a comprehensive inventory and consistent analysis of *traditional* financing mechanisms. System capital improvements and ongoing maintenance and operation costs are fundamentally financed with cash-on-hand or by issuing debt. Cash financing is typically supported by user fees or taxes that support a general fund. User fees include volume-usage charges and service fees which are typically fixed, such as residential connection charges. Cash is typically used to pay for O&M costs and larger capital project costs are primarily financed by issuing debt. Debt financing includes various types of bonds ranging from G.O. bonds, backed by the General Fund, to builder bonds backed by special assessment districts. Access to different types of capital markets varies across state and local agencies.

Common Financing Options

- Water Rates and Usage Charges
- Service Fees (fixed)
- Property Taxes (General Fund)
- State Revolving Fund Loans and Local Assistance Grants
- Private Investment
- G.O. Bonds, Lease-Revenue Bonds, and Revenue Bonds
- Special Assessments and Fees

Federal finance strategies typically involve the federal treasury financing water projects selected based on cost benefit analyses. Direct project beneficiaries reimburse the costs through user fees. For example, Central Valley Project water supply contractors pay for water deliveries which finance CVP costs.

The state uses bonds to finance capital investments in new water management projects, including general fund supported bonds and revenue bonds. General Obligation (G.O.) bonds are backed by the taxing power of the state and paid off from the General Fund. Financing for water infrastructure at the state level has increasingly relied on G.O. bonds in recent years. G.O. bonds provide an infusion of capital to

finance construction but may not adequately provide for O&M, and ongoing repair costs. The state also uses lease-revenue bonds which are similar to G.O. bonds but are not backed by the General Fund and do not require voter approval. Revenue bonds are not supported by the General Fund and are repaid by a revenue stream, typically user fees.

Local agencies primarily finance water management projects with revenue bonds. Revenue bonds are backed by user fees and typically carry a higher interest cost than G.O. bonds. Some projects are financed by local G.O. bonds backed by local property taxes, although this is less common due to supermajority voting requirements. Local agencies additionally have access to state revolving fund (loan) programs and state-local assistance grants. These typically involve cost-sharing between local and state agencies.

Table 3 summarizes water management financing mechanisms that have been traditionally used at the state and local level in addition to user fees. The appropriate uses, the feasibility, key trade-offs, and applicability in California for these mechanisms are described below and in Table 3.

Table 3 Traditional State and Local Finance Mechanisms

| Finance Strategy | Appropriate Uses | Feasibility | Key Tradeoffs | Application in California |
|--------------------------------|---|---|--|--|
| Revenue Bonds | Projects where a dependable revenue stream is available | A standard method of financing | None | A typical method of financing for local and state projects |
| Beneficiary Pays and User Fees | Projects where direct beneficiaries are easily identified. | Potentially works well with clearly defined beneficiaries, less likely to work for projects with significant public benefits. | Will focus projects to those with local scope which may undermine IWM efforts. May limit state's ability to increase fees and taxes to support other projects. | State Water Project is an excellent example as over 90% of project cost will be repaid by direct beneficiaries (contractors) |
| Assessment Districts | Can be formed by majority vote but must support local projects that do not provide a "general" public benefit. Water and storm water projects are generally allowed under assessment districts. | The state could coordinate with local agencies to establish assessment districts and may be able to prevent Proposition 218 voting requirements. | Assessment districts cannot be used to support general public benefits and, as such, will tend to focus on local projects. | 1911 and 1913/1915 assessment districts are widely used by local agencies in California. |
| Impact Fees | Used by local governments to charge new development for the additional cost imposed on existing public infrastructure. | Impact fees are generally used in over 90% of local governments in California, thus there is limited opportunities for further expansion. Fees are capped at the true cost of additional development. | Deters new development. | Widely used in California |
| Mello-Roos Special Taxes | Areas with new development. It is possible to establish Community Facilities Districts in other areas, but this requires a majority vote by residents to tax themselves. | CFDs are most feasible during strong housing markets when there is significant new development. | When housing markets and development slows, forming additional CFDs is difficult and there may be concerns with revenues to pay back existing bonds. | Recently used to finance the Bear River Levee Setback project in Yuba County |

Assessment Districts

An assessment district is a voter established district that provides a special, measurable, local, and direct benefit from such improvements and services to assessed properties. A special benefit is defined as “a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large. General enhancement of property value does not constitute special benefit.” Establishing an assessment district requires a vote in accordance with Proposition 218.

Assessment districts have seen increased use in California, for a range of infrastructure financing,

following the passage of Proposition 13. Proposition 13 limited the ability of local public agencies to increase property taxes based on a property's assessed value. The authority to establish assessment districts dates to the Improvement Act of 1911 and the Municipal Improvement Act of 1913, which are combined with the Improvement Bond Act of 1915 in order to issue bonds to finance the project.

Appropriate Uses. The state could work with local agencies to help establish regional assessment districts. If the State were involved in the formation of the assessment district, the district might not be subject to the restrictions of Proposition 218. These assessment districts would help local agencies achieve self sufficiency and regional solutions for water management such as storm water drainage and flood management within a watershed.

Feasibility. The primary obstacle with creating assessment districts is Proposition 218 which requires a majority of voters to approve the district.

Tradeoffs. Assessment districts cannot be used to finance general public benefits. Consequently, the scope of the district is likely to be very local which may not align well with broader goals for IWM.

Impact Fees

Impact fees are a payment extracted from new development that is different than a tax or special assessment. In California, impact fees are generally regulated by AB 1600, passed in 1987. The fee is used to ensure that new development pays for additional strain on existing facilities. The impact fee must be tied to the additional cost of the development, if it exceeds this cost it is declared a special tax which requires voter approval. This is commonly used for new development in California.

Impact fees are based on the principle that new development should pay for the additional cost it imposes on local infrastructure. These are commonly in the form of developer fees which do not require voter approval, thereby avoiding Proposition 218 requirements. These fees also circumvent Proposition 13 which limited property tax increases.

Appropriate Uses. Impact fees are used to charge new development the additional cost on public facilities. These fees support general funds and are not a viable option for financing new water projects. Over 90% of local governments in California currently use impact fees.

Feasibility. There are limited opportunities to increase use of impact fees, given the current widespread use. Impact fees cannot exceed the true additional cost of new development.

Tradeoffs. Impact fees deter new development as it increases the cost to developers. Some of this cost may be capitalized into home values and passed on to homeowners.

Mello-Roos Special Taxes

The Mello-Roos Act of 1982 established Community Facility Districts with the ability to levy special-taxes on residents to support new public infrastructure. The Mello-Roos Community Facilities Act was enacted by the California State Legislature in 1982 (Section 53311 et. seq. of the Government Code) to provide an alternate means of financing public infrastructure and services subsequent to the passage of Proposition 13 in 1978. This has seen wide-spread use among school districts for school facilities

financing, but has seen limited application in water resources.

CFDs offer a way around Proposition 218 requirements. Although a two-thirds vote of the “qualified electors” is required to establish a CFD, the boundaries of a potential CFD could be set so that fewer than 12 registered voters initially reside within the CFD. In this case, the “qualified electors” would be the property owners (not the registered voters), and if a property owner were conditioned to form or annex to a CFD to develop his or her property, he would need to agree to include his property in the CFD. While this type of financing would not generate funds to pay for existing development costs for a program, it could cover a substantial portion of the cost of such services related to future development and redevelopment.

A CFD was recently established for the Bear River Levee Setback Project¹ in Yuba County. Instead of USACE involvement, as is typical for flood projects, the levee was constructed by the Three Rivers Levee Improvement Authority which is composed of officials from Yuba County and Reclamation District 784. USACE reviewed design and construction activities but the federal government did not cover any of the construction costs. The state used bond proceeds in addition to developer fees to finance the project, \$60 million from the state and the rest was from developer fees. The Three Rivers Levee Improvement Authority created two Community Facilities Districts (CFDs). Each CFD was created to allow up to \$25 million in bonds to be sold to support the Bear River Levee project. Each year that there are outstanding bonds, a special tax is calculated for each parcel in the CFD. The tax is levied against each parcel in order to pay principal and interest on outstanding bonds plus administrative costs. The levy for the Three Rivers Levee Improvement Authority CDFs ranges from \$471.30 to \$1,197.16 per parcel in FY 2011.

Appropriate Uses. CFDs work well during strong housing markets as there is significant new development. New development increases opportunities for establishing CFDs to support new infrastructure projects.

Feasibility. CFDs can be used to finance new water infrastructure projects. This is easiest in new developments as the voting requirements are simplified. Districts can be formed in existing communities if homeowners approve with 2/3 majority vote.

Tradeoffs. Equity distribution issues are a concern as CFDs typically place a larger burden on low and middle-income housing. This is because CFDs are typically formed in higher-density projects responsible for a larger burden on public infrastructure. A key drawback of CFDs is that when housing construction slows and market conditions weaken these are an unreliable source of funds.

Role of State Government and Guiding Principles for Finance

The purpose of this section is to: (1) provide a basis for estimating the future cost of State government IWM activities by clarifying future State government roles; and (2) shape future State government IWM funding and finance decisions by specifying guiding principles. In reviewing the history of water development in California, the role of the state and federal government was demonstrated by their

¹ For more information: <http://www.trlia.org/docs/ASSESSMENTS-CFDs/CFD/CFD%20Documents/FY%201112%20Annual%20Tax%20Report%20CFD%202006-1.pdf>

financing major improvements to promote population growth and economic development. The thinking was broad based project financing would allow for major projects that crossed watersheds or had a broad based benefit. Over the past few decades, government's role also began to include environmental protection and enhancement. More recently, the State has taken on the role of promoting sustainability and making sure that disadvantaged communities have safe water and sanitation.

Chapter 3 – *Imperative to Invest in Innovation and Infrastructure* describes the proposed future role of State government in IWM. This information is summarized below. The guidance provided by the Update 2013 vision, mission, goals, objectives, and principles (Chapter 3) are applicable to all levels of planning and by State, federal, and local agencies and other implementing entities. As described earlier, local agencies expenditures on IWM have comprised the largest component of all agency investments – a trend that is expected to continue. Local agencies will continue to be primarily responsible for funding projects and programs that create local benefits and to participate in larger systemwide projects that benefit them.

The primary role of State government in IWM is to fulfill its basic day-to-day obligations and invest in IWM innovation and infrastructure.

State Government Basic Obligations

The basic day-to-day obligations of State government in IWM include:

- **Represent California in government-to-government interactions** with the federal government, other states, and other sovereign nations and tribal governments.
- **Meet basic public health and safety needs** by regulating minimum public health standards.
- **Protect public trust resources** in by regulation and in planning and allocation of water resources. The public trust doctrine recognizes that certain natural resources, including water, tide and submerged lands, the beds and banks of navigable rivers, and fish and wildlife resources are owned by the public and held in trust for present and future generations of Californians.
- **Protect unique real property interests.** The State has a fundamental responsibility to California taxpayers to protect the State real property assets it owns and reduce State liabilities.

Guiding Finance Principles

The following principles were developed from several financing meetings and plans involving California water, including the CALFED Bay-Delta Program and the draft Delta Plan.

1. To enhance revenue stability new funding sources should be broad-based, from multiple sources. Therefore, multi-objective and system-wide benefits should be encouraged in project design, such as integrated flood management, habitat, water quality, public safety, recreation, aesthetics, and other recognized benefits.
2. The “beneficiaries pay” principle is a common funding approach for water projects. Specific beneficiaries of capital projects and operational costs should be identified in order to determine the funding and financing mechanisms for apportioning and recovering costs.
3. Whenever possible, activities that impact natural systems should be identified so that regulatory and restoration costs might be apportioned through volume-based or impact-based fees. However, costs for regulation and restoration related to legacy impacts should be publically funded.

4. Public benefits should be well defined and distinction should be made between public and private beneficiaries.
5. Project finance plans should include mechanisms to ensure that user fees are legally dedicated to their intended purpose.
6. To the extent possible, user fees should be based on a quantified benefit or impact, such as the amount of water used or the volume of contaminants discharged, respectively.
7. State and federal sources of funding should provide funding for a significant share of the proportional costs for disadvantaged and/or low income communities through finance assistance programs.
8. Technical and economic feasibility are basic prioritization criteria that promote accountability to tax and ratepayers through the wise and efficient stewardship of tax and ratepayer financial resources.
9. Future finance strategies should recognize the critical role of public-private partnerships

Potential Funding Mechanisms

The purpose of this section is to explore the potential use of funding alternatives by providing a comprehensive inventory and consistent analysis of possible *new* funding mechanisms. California's levees and water infrastructure is aging and in need of additional investment, but the future of water financing remains uncertain. Water management is being integrated but water management funding remains fragmented and this limits opportunities for further management integration. Future financing strategies will need to capitalize on local, state, and federal cost sharing by further integrating water management. Even with further integration, securing adequate future funding will require innovative financing strategies such as those used for other public infrastructure. In addition to the mechanisms described earlier, new mechanisms are described below.

Budget balancing efforts in California and increased attention on the federal deficit will limit the political viability of future revenue generation through public debt such as G.O. bonds. The public is increasing aware of and adverse to hidden risks and long-term borrowing costs. To secure a revenue stream for future California water management the state will need to explore innovative finance options at the federal, state, and local level.

There is no single solution to securing a reliable stream of water management funding. It is likely that solutions for sustainable funding will be driven by local interests and solutions will need to be considered at a local scale, increasing the need for further integrated water management.

Proposed Federal Water Financing

This section summarizes water management financing options being considered at the Federal level.

In 2012 the Environmental Protection Agency estimated that national water and wastewater infrastructure requires over \$500 billion chapter in investments over the next 20 years. Some estimates put this figure well into the trillions of dollars. The Congressional Research Service recently reviewed² water

² Congressional Research Service, *Legislative Options for Financing Water Infrastructure*, April 2012, by Claudia Copeland, William Mallett, and Steven Maguire.

infrastructure financing alternatives under consideration at the Federal level. There are six key actions under consideration, some of which may be applicable at the state level.

- Increase funding for State Revolving Fund Programs
- Create a Federal infrastructure trust fund
- Create a Water Infrastructure Finance Innovation Act (WIFIA)
- Create a National Infrastructure Bank
- Modify Private Activity Bond Restrictions
- Reinstate Build America Bonds

Table 4 summarizes the menu of Federal water infrastructure financing strategies currently under consideration. The following subsections review the individual components.

Table 4 Federal Finance Strategies Summary

| Finance Strategy | Appropriate Uses | Feasibility | Key Tradeoffs | Application in California |
|---|---|--|--|--|
| State Revolving Funds | Under Clean Water Act SRF funds can be used for: wastewater, non-point source pollution, estuary habitat. Under Safe Drinking Water Act funds can be used for: health and clean drinking water. | SRFs are capitalized through annual Federal grants and appropriations are expected to decline with increased budget/deficit pressure. | Excludes private utilities. Favors small and medium projects and communities. Eligible projects are determined by Federal mandates and the State agency which manages the SRF. | The State Water Resources Control and CA Department of Public Health manage the two SRF's currently operating in California. |
| Federal Water Infrastructure Trust Fund | Eligible projects would be subject to federal rules, current proposals limit projects to publically owned utilities. | The fund would be supported by an annual revenue stream. The difficulty will be for Congress to identify a source given the fiscal climate in Washington. | A revenue stream to support the fund will likely involve taxes on companies or users. | None currently. |
| Water Infrastructure Finance Innovation Act | WIFIA would establish an Authority to provide low interest loans to eligible projects, currently limited to public agencies. Other rules and eligibility will depend on the final version of the bill (currently S. 3626). | TIFIA sets a precedent and provides a framework for a successful WIFIA. Water loans are generally less risky than transportation loans, thus WIFIA may be more successful than TIFIA. | The current draft bill requires eligible projects exceed \$20 million. The program would consequently target larger projects and communities. | None currently. |
| National Infrastructure Bank | Establish Infrastructure Bank to provide funding to infrastructure projects, including water. This may encourage additional investment as the government bears some of the financial risk. | The fund would supplement the existing SRFs to provide additional funding. | Water projects would compete for funding with other infrastructure projects. | None currently. |
| Private Activity Bonds | Generate additional private investment in water projects. | Effectiveness of expanding PABs depends on demand for additional credit by private entities. There is currently mixed evidence. | Private investment will increase which may reduce public water utilities. Residents typically prefer public agencies for water infrastructure and, as such, this may be an undesirable outcome. | Private companies (such as American Water) use PABs in their portfolio. |
| Build America Bonds | Issued to provide low borrowing costs to public entities investing in infrastructure projects. | BABs are currently under consideration in the President's Budget for 2013. | Lowers borrowing costs to public entities which may crowd out private investment. | Various local projects in 2009 - 2010 (when program ran previously). |

It is important to note that the federal strategies summarized in this chapter depend on the final form of legislation that Congress passes. Many of these financing strategies are either draft bills or still under consideration in respective subcommittees. Table 5 summarizes the relevant bills being considered in Congress at the time this chapter was drafted.

Table 5 Summary of Relevant Federal Water Infrastructure Financing Legislation

| Congress | Bill Number | Title | Relevant Items | Status |
|-----------------|---------------------|--|---|----------------------------------|
| 112th | H.R. 3145 | Water Quality Protection and Job Creation Act of 2011 | Amends the Clean Water Act in several ways. Would allow the EPA to make grants to nonprofit organizations for eligible wastewater projects and would increase Clean Water Act SRF appropriations. | Referred to House subcommittee. |
| 112th | S. 3626 | Water Infrastructure Finance and Innovation Act of 2012 | Legislation similar to the TIFIA. Would authorize FEMA to make direct loans to support eligible water infrastructure projects. | Referred to Senate subcommittee. |
| 111th | H.R. 5320 | Assistance, Quality, and Affordability Act of 2010 | Amends the Safe drinking Water Act to reauthorize and increase SRF funding through FY 2015. | Referred to Senate subcommittee. |
| 112th | H.R. 6249 | Water Protection and Reinvestment Act of 2012 | Would establish the Water Protection and Reinvestment Trust Fund. | Referred to House subcommittee. |
| 112th | H.R. 402 | National Infrastructure Development Bank Act of 2011 | Establishes the National Infrastructure Development Bank with appointed Board of Directors to oversee energy, environmental, communication, and transportation infrastructure projects. | Referred to House subcommittee. |
| 112th | S. 652 | Building and Upgrading Infrastructure for Long-Term Development | Would establish the American Infrastructure Financing Authority and appointed Board of Directors to oversee loans for transportation, water, or energy infrastructure projects. | Referred to House subcommittee. |
| 112th | S. 939 | Sustainable Water Infrastructure Investment Act of 2011 | Expands Private Activity Bonds to privately owned sewage and water facilities. | Referred to Senate subcommittee. |
| 112th | H.R. 1802 | Sustainable Water Infrastructure Investment Act of 2011 | Expands Private Activity Bonds to privately owned sewage and water facilities. | Referred to House subcommittee. |
| 113th | S. 4 | A bill to create jobs and strengthen our economy by rebuilding our nation's infrastructure | Text not yet received by GPO, bill was proposed 1/22/13 and likely includes water related infrastructure investment. | Draft |
| | Presidential Budget | | Reintroduce Build America Bonds. | Under consideration. |

State Revolving Fund Programs

SRF programs are funded by an initial (and periodic) capital injection(s) by the federal government and managed by individual states. The SRF essentially functions as a bank, lending at low interest rates for specific water projects. Loan repayments are then recycled back to individual SRF programs. SRF programs are governed by eligible project rules in addition to funding management constraints. States only make loans, purchase local debt, or issue financial guarantees and are not allowed to deplete the capital of the fund. Thus it operates as a “revolving” source of financing.

SRF Programs

- Key benefits:
 - Proven to be effective historically
 - Ability to leverage additional funds
- Important Tradeoffs:
 - Federally-mandated project restrictions
 - No private utilities

The Clean Water Act of 1972 established the first water-related SRF, which was updated in 1987 under the Water Quality Act. The CWA and WQA SRF program targets financing for municipal sewage treatment and wastewater facilities. The program allows for projects in wastewater treatment, non-point source pollution control, and estuary habitat. In the U.S., this program has provided over \$65 billion in (leveraged) funding to over 20,000 projects. The State Water Resources Control Board has managed the CWSRF in California since 1987. As of 2012, \$6.172 billion in funding has been issued, of which 94% was targeted for wastewater projects and 6% for pollution and estuary projects.

The Safe Drinking Water Act of 1974 established federal funding for SRFs to support drinking water projects. The California Department of Public Health manages the Safe Drinking Water State Revolving Fund in California. As of 2012, the SDWSRF has provided over \$16 billion in financing to over 6,000 projects in California.

Appropriate Uses. Clean Water ACT SRF money can be used for three types of projects by publically owned utilities including construction and maintenance of water treatment facilities, non-point source pollution, and estuary management. The state may impose additional restrictions and rules for eligible projects. Safe Drinking Water Act SRF money can support projects by publically owned utilities to support clean drinking water.

Feasibility. SRFs have been largely successful over the last 30 years in providing funding for water infrastructure projects. States can use the SRF to secure bonds and use this money to lend to eligible programs, thereby leveraging existing capital. SRF funds act as a loan program, not a federal grant. Many states impose project limits which increases the effectiveness of the program for smaller communities able to finance a larger portion of projects with SRF money. SRFs are affected by uncertainty around the federal deficit and future discretionary spending.

Tradeoffs. Capital injections into SRFs are subject to federal appropriations. In recent years appropriations have become less certain. The current federal budget proposal includes a 15% reduction in SRF funding. In addition to an uncertain funding stream, only publically owned utility projects are eligible for funding. This limits states ability to capitalize on public-private partnerships.

Federal Water Infrastructure Trust Fund

Airport and Airways and Highway Federal Trust Funds provide financing to airport and highway infrastructure. The Water Infrastructure Trust Fund, if established by Congress, would create a stable and long term revenue stream to finance water infrastructure projects. The current proposal under consideration is H.R. 3145 and includes over \$10 billion annually with a focus on clean water projects. The funding source is not identified in the current version of the bill but previous proposals to generate funding include excise taxes, corporate profits taxes, and fees on relevant pollutants and discharge.

A trust fund will only generate a steady financing stream if Congress is able to agree on a stable revenue stream to fund the trust. This has historically worked for the Airport and Airways and Highway Trusts; however the political climate has changed significantly since these were enacted.

Federal Water Infrastructure Trust Fund

- Key Benefits:
 - Stable financing source
 - Legislation could make private-public partnerships eligible
- Important Tradeoffs:
 - Politically difficult given the current fiscal climate
 - Requires a dedicated revenue stream, which may come from other public infrastructure.

Appropriate Uses. A Federal Water Infrastructure Trust Fund would allow states to leverage federal money to support water management and infrastructure. Eligible projects would likely be subject to federal guidelines. Current proposals in Congress limit funds to publically owned utilities.

Feasibility. In contrast to SRFs, a federal trust fund for water infrastructure would be supported by a fixed annual revenue stream. Removing some of the variability associated with annual appropriations may allow the state and local agencies to coordinate and better leverage federal funding.

Tradeoffs. The most significant tradeoff comes from identifying a dedicated revenue stream to support the fund. Given the current fiscal climate in Washington,

funding may come at the expense of other public infrastructure or other federal programs.

Water Infrastructure Finance Innovation Act (WIFIA)

In 1998 Congress created the Transportation Infrastructure Finance Innovation Act (TIFIA). This program is targeted for transportation projects and has seen success in the years since implementation. TIFIA provides federal credit assistance up to one-third of project costs, with a minimum project cost-eligibility requirement of \$50 million. Eligible projects must have a dedicated revenue stream (typically tolls). TIFIA is supported by \$122 million in federal money annually, administered by the Department of Transportation.

WIFIA

- Key Benefits:
 - Establishes a secure revenue stream that would be used to fund projects direct and/or SRFs
 - May include a grace period before loan repayment which will facilitate long term water projects
- Important Tradeoffs:
 - The draft H.R. 3145 states eligible projects must exceed \$20 million, which may preclude smaller local projects

A WIFIA program would be similar to the TIFIA and potentially administered by the Environmental Protection Agency. The Water Resources and Environment Subcommittee has circulated a draft WIFIA bill (H.R. 3145) and held two hearings on the topic in 2012. One of the main benefits of the proposed program would be to provide low cost capital to infrastructure projects. Under the TIFIA program loan repayment does not begin until 5 years after “substantial completion” of the project, with payments ending after 35 years. This structure allows projects to be built and benefits to be realized before loan repayment starts, a significant benefit to water management projects. However, a key drawback is that the program requires projects have a revenue stream. For water infrastructure projects this would limit eligible projects to those that collect user fees based on water use.

The WIFIA currently under consideration encompasses a number of other finance strategies outlined here. It includes additional SRF funding and proposes changes to Private Activity Bonds (discussed below).

Appropriate Uses. Similar to the Water Infrastructure Trust Fund, the WIFIA would provide low interest loans to eligible projects. Current proposals limit eligible programs to publically owned utilities. Funds available under WIFIA would be available directly to projects or to support existing SRFs.

Feasibility. The WIFIA would be modeled after the TIFIA which has been historically successful. Water loans are typically less risky than those for transportation infrastructure.

Tradeoffs. Eligible projects must be over \$20 million and this will consequently target larger projects, potentially at the expense of smaller communities.

National Infrastructure Bank

An infrastructure bank manages capital and provides loans for infrastructure development. The current Administration has run on a political platform that includes increased infrastructure funding and an infrastructure bank has been considered by Congress on several occasions. Propositions³ include an independent federal agency, federal corporation, government-sponsored private enterprise, or non-profit corporation to establish the bank. The most recent proposal, H.R. 402, would create a bank similar to the FDIC which would include a board of directors to oversee operations. The bank would be authorized to issue bonds and subsidies to infrastructure projects, borrow and, in turn, lend to commercial infrastructure projects, and purchase and sell infrastructure loans and securities on the market.

Infrastructure Bank

- Key Benefits:
 - Government oversight of project selection to better target funds
 - Eligible projects with over \$100 million in cost, however this will be lower for rural areas
- Important Tradeoffs:
 - This would compete with WIFIA and is unnecessary if WIFIA is implemented

An infrastructure bank would potentially provide funding to a range of infrastructure projects, with water projects as a single component. One benefit of an infrastructure bank is the ability of the federal government to oversee approved projects and target funds to those that are financially viable. Other selection criteria may focus on social benefits and other local effects rather than financial return. However, this may be a drawback for water projects as many are designed with various types of benefits in mind, such as ecosystem services. Many of these benefits are difficult to quantify, thus a project may not appear to be financially viable.

Appropriate Uses. An infrastructure bank would provide loans and loan guarantees to eligible infrastructure projects. This includes transportation and energy, in addition to water. The current bill proposes eligible projects over \$100 million or \$25 million in rural areas.

Feasibility. An infrastructure bank may encourage additional investment and projects because the government will be able to bear some of the financial risk. However, establishing an infrastructure bank requires an initial injection of capital from Congress, over \$10 billion.

Tradeoffs. Eligible projects must be over \$100 million and this will consequently target larger projects, potentially at the expense of smaller communities. However, language in some of the draft proposals would make exceptions for rural communities (\$25 million).

³ Congressional Research Service, *National Infrastructure Bank: Overview and Current Legislation*, R42115, by Claudia Copeland, William Mallett, and Steven Maguire.

Private Activity Bonds

Congress is considering modifying Private Activity Bond restrictions. Private Activity Bonds are tax-exempt bonds that are available for privately owned water facilities operated by a government unit or charge water rates that are approved by a subdivision of a community. Private agencies are typically not eligible for tax-exempt municipal bonds, which limits access to capital to finance new infrastructure projects. This is generally a poor outcome since private agencies are focused on return to investors and, consequently, pioneer new technologies and cost innovations. Expanding PABs could capitalize on these cost savings and new technologies and encourage additional investment from the private sector.

Concerns have been raised over providing tax-exempt bonds to private agencies for public infrastructure. If only water infrastructure has access to interest free bonds, this may attract investment from other public infrastructure. Providing tax-exempt bonds also raises the deficit, but this also depends on the additional revenue generated through employment for new projects. Congress is considering changing requirements to allow more access to tax-exempt bonds for water infrastructure.

Private Activity Bonds

- Key Benefits:
 - Capitalize on efficiencies and technologies developed by private entities
- Important Tradeoffs:
 - Issuing more debt raises the deficit
 - Current private lending costs are relatively low, there may be a limited demand for PABs

Appropriate Uses. PABs are targeted for private entities investing in public infrastructure.

Feasibility. Expanding PABs will be effective if there is demand to meet the new supply. Lending rates for private entities are currently low, thus there may be low demand for PABs.

Tradeoffs. Additional PABs will encourage additional private investment in local communities. This has seen mixed results with water infrastructure as residents prefer public and transparent agencies for water delivery.

Build America Bonds

Congress is considering reinstating Build America Bonds. As part of the American Recovery and Reinvestment Act, Congress created Build America Bonds to encourage job creation through infrastructure projects. Eligible projects were not limited to infrastructure and did not allow for private company participation. The bonds stopped being issued in December 2010. Congress is considering reinstating the bonds to target water infrastructure projects.

This is currently supported by the Obama Administration. BABs (currently) offer a credit of 35% of the established interest rate and help state and local governments save on borrowing costs. This, in turn, encourages additional public investment.

State and Local Finance Options

This section summarizes water management financing strategies that are being considered, or are applicable, at the state and local level.

State and local agencies face increased need for water management investment and limited financing options. Population growth, strong agricultural demand, and environmental concerns will place increasing strain on California's water infrastructure. Funding for project construction and O&M is a major obstacle toward improving and maintaining future water management. Most local agency budgets are allocated to staff support and other operating expenses, leaving little funding available for rehabilitation and construction of new facilities. State and local cost sharing and integrated water management will become increasingly important moving forward.

Eight financing strategies were identified as relevant to local and state agencies, including:

- Private-Public Partnerships
- Public Goods Charge for Water
- Increased use of Beneficiary Pays Principle
- Changes to Proposition 218
- Including Other Project Benefits

Table 6 summarizes state and local water management financing strategies.

Table 6 State and Local Finance Strategies Summary

| Finance Strategy | Appropriate Uses | Feasibility | Key Tradeoffs | Application in California |
|---|--|--|---|---|
| Private-Public-Partnerships | Areas where private water agencies are currently operating and/or areas where private agencies may have an interest in operating. P3s are likely to benefit small agencies the most. | California would need to pass laws to expand use of P3s and would need to be aware of sensitive public opinion towards private agencies delivering water. | Low borrowing costs available to state and local governments may increase the likelihood that riskier projects are financed. | Application is restricted to pilot program projects. |
| Statewide Water Use Fee (Public Goods Charge) | A public goods charge essentially functions as a tax. From an economic standpoint, it is more efficient to charge a volumetric user fee than a flat tax. | Political feasibility concerns. A PGC should be proposed as a fee, not a tax, to prevent voting issues with Proposition 218 and other tax vote requirements. | A flat rate is easier to implement but a volumetric charge is more efficient. There are also equity considerations as low income households would need to be treated differently. | Not currently in use for water projects, was proposed in 2006 Governor's Plan. A PGC is currently in use for electricity (since 1980) and natural gas (since 2000). |
| Beneficiary Pays and User Fees | Projects where direct beneficiaries are easily identified. | Potentially works well with clearly defined beneficiaries, less likely to work for projects with significant public benefits. | Will focus projects to those with local scope which may undermine IWM efforts. May limit state's ability to increase fees and taxes to support other projects. | State Water Project is an excellent example as over 90% of project cost will be repaid by direct beneficiaries (contractors) |
| Changes to Proposition 218 | Lowering the supermajority requirement for local water bonds could increase local finance alternatives. | Reform for school bonds was successful in November 2000, thus there is a precedent for relaxing water bond requirements | If reforms were passed this may increase locally funded projects and offer the state additional options for local cost sharing | None currently. |
| Expand Funding Pool for Projects | This would apply to projects with energy, environmental, and other public good benefits which can be assigned a dollar value. | Feasibility will depend on the respective project and legal hurdles. | Indeterminate | None currently. |

Private-Public Partnerships

Private sector partnerships (commonly called P3s or PPPs) are partnerships between government and private agencies. Just under one-sixth of M&I water in California is currently delivered via private companies, approximately equal to the U.S. average. P3s have seen limited application in California because they are restricted to pilot project programs for water management. Neighboring states with broader enabling legislation in place include Oregon, Washington, Nevada, Utah, and Colorado. There is consequently room to expand these partnerships in California.

P3s offer two key benefits, including an ability to capitalize on innovative technologies and an ability to capitalize on private cost efficiencies. Similar to other industries, private water agencies operate to maximize the return to company owners and consequently have an incentive to innovate new technologies. Private agencies are likely to focus on cost (and water) saving management strategies.

P3s could alternatively focus on increasing the availability of capital to private agencies. This may also encourage increased risk sharing. The state is able to borrow at a better rate than private agencies and this will benefit private investment under P3s. One drawback is that this may create an incentive for riskier projects to be pursued as companies will seek assistance in securing funds for projects with higher borrowing costs (typically riskier projects).

P3s can also help the state use renting and leasing as a finance strategy. This is where privately owned infrastructure is made available for public use. The government rents or leases the facilities from the private entity. This is not commonly used in water infrastructure, but may be more common with additional P3s.

Private-Public Partnerships

- **Key Benefits:**
 - Encourage innovation and cost saving technologies developed by private agencies
 - Provide low cost capital to private agencies
- **Important Tradeoffs:**
 - Ratepayers are generally sensitive to changes in fees or distribution issues with private agencies
 - Potential for riskier projects as state and local agencies have access to cheaper capital

Appropriate Uses. The effectiveness of increased P3s depends on factors such as size of the agency and water fee structure. Smaller private agencies are likely to realize the highest benefits by capitalizing on the economies of scale at the state level. User-fee based projects are ideal because they offer a stable revenue stream to both the agency and the state. Finally, P3s are applicable at the local level as well as the state level.

Feasibility. Legislation and public opinion are the two largest obstacles to expanded use of P3s. California currently allows for P3s through pilot programs. Since private agencies act as for-profit companies there is a potential for negative public opinion. For example, when private water utilities seek to increase rates this can be met with resistance by the public.

Tradeoffs. In addition to sensitivity toward rate increases the public may be sensitive to water quality or distribution problems. This, in turn, puts the state or local government at increased risk. A delicate balance between public information and protecting the for-profit nature of private agencies would need to be achieved.

Statewide Water Use Fee (Public Goods Charge)

A statewide user fee was considered in the 2006 Governor's Plan. Another term for a statewide user fee is a public goods charge (PGC). The 2006 Governor's Plan proposed a user fee for different types of water users including urban, agricultural, and industrial. It proposed a flat monthly charge on every home and business and the charge would vary by urban, agricultural, and industrial users. The PGC option has also been reviewed by researchers⁴ working on behalf of the California Public Utilities Commission and the Water Energy Team of the Climate Action Team. It was also discussed in early drafts of the Bay Delta Conservation Plan.

A PGC would be implemented to secure a long term revenue stream for water innovations and infrastructure financing. A PGC could take many forms but would fundamentally be a fee or tax which would be paid by every water user in the state. The fee or tax could be structured as a flat rate (everyone pays the same), percentage rate (based on proportional usage), or volumetric charge (everyone pays per unit of water used). A volumetric charge best links personal usage to cost and this method would be the most economically efficient.

Agencies are typically reluctant to raise rates, a PGC provides a way around this. The state would need to be careful to structure the PGC as a fee in order to avoid issues with Proposition 218 and other tax vote requirements. Referring to the PGC as a tax may increase the likelihood of lawsuits.

Public Goods Charge

- Key Benefits:
 - Avoids Proposition 218 voting requirements
 - Will generate a long term and reliable stream of funding
- Important Tradeoffs:
 - Careful consideration of the fee structure is required
 - The PGC would need to be crafted as a fee to avoid Proposition 218 and other tax voting requirements

Appropriate Uses. A PGC can be tailored to be appropriate for a range of water innovations and infrastructure projects. For example, a flat-rate charge on all users would be appropriate for projects with a significant public benefit to the entire state. Volumetric based fees could be allocated to projects that are related to the users from which they are collected. The magnitude of potential revenues from such a fee is generally not conducive to funding large, capital intensive projects. Such fees are generally better suited for small, stable funding purposes such as innovation activities (equivalent to a fraction of infrastructure costs) or debt service.

Feasibility. PGCs have been implemented for other sectors in California and have enjoyed success. A PGC currently exists for electricity (since 1996; AB 1980) and

natural gas (since 2000; AB 1002).

Tradeoffs. Careful attention must be paid to where the PGC revenues are used and how the fee is levied. If targeted projects produce a significant public good (for example, ecosystem restoration) then a flat

⁴ U.C. Berkeley Goldman School of Public Policy, *Implementing a Public Goods Charge for Water*, by Kasandra Griffin, Greg Leventis, and Brian McDonald.

statewide user fee may be optimal. However, if the fee is targeted to specific projects, then the users of these projects benefit disproportionately.

Expand Beneficiary Pays Principle

The beneficiary pays principle states that the users should be responsible for paying the full cost of their individual use. In other words, new water infrastructure projects should be financed by the direct beneficiaries of the project. Many water projects have multiple benefits and it would be difficult to allocate costs proportionally. For example, flood control may protect floodplain residents, in addition to local habitat and protection for downstream residents.

User fees are one example of the beneficiary pays principle. Examples of user fees include residential water usage charges and flood control district fees. The State Water Project is an example of effective use of user fees. It is estimated that 94% of project costs will be paid by project water users. The rest is paid by taxes and the state to support habitat and recreation benefits of the SWP.

Beneficiary Pays

- Key Benefits:
 - Efficient method of cost allocation for projects with clearly defined beneficiaries
 - If users pay for a project, it is less likely that marginal projects will be pursued
- Important Tradeoffs:
 - Difficult to implement for projects with a large number of beneficiaries
 - May limit the ability of the state to raise other taxes and fees to support other water infrastructure

Appropriate Uses. For projects where an identifiable population or group, as opposed to the population as a whole, benefit from the infrastructure project, it may be appropriate to finance the expenditure with fees levied on that group.

Feasibility. Beneficiary pays is feasible for projects with clearly defined beneficiaries. With increasing public awareness of environmental benefits of water projects this may become increasingly difficult. For example, managing a Bypass prevents levee breach and flooding of residential homes (direct beneficiaries) and also supports local ecosystem habitat (public benefit). Users asked to pay fees have rightly pointed to the fact that many projects serve a public benefit as well.

Tradeoffs. User fees can be subject to the same efficiency concerns as a PGC. Specifically, it can be difficult to disentangle public benefits from those targeted

to specific users who are then asked to pay. Increasing use of user fees may limit the ability of the state to increase other revenue sources, such as PGCs.

Changes to Proposition 218

Proposition 13 was passed in 1978, limiting property taxes and, in turn, an important source of revenue for local governments. To make up for the shortfall, new fees and assessments were developed, such as the impact fees and assessment districts described above. In 1996, voters approved Proposition 218, the Right to Vote on Taxes Act. Proposition 218 ensured that voters must approve all taxes and most charges to property owners by 2/3 majority vote. It also sought to limit the use of assessments and property-related fees to fund only services that directly benefit property.

The significance of Proposition 218 to the funding of local water management is to limit the ability to raise revenue. Most sources of local funding, with the exception of sewer, water, and refuse collection fees, cannot be increased without a vote. The ability for general funds to pay for water infrastructure is also limited due to competition for such funds from other uses, and the requirement that any additional bond funds must be approved by two-thirds of the electorate. Unless the electorate or the property owners in an area vote in favor of a general tax, special tax, assessment or fee, none of these funding sources can be implemented.

Local agencies are significantly constrained by Proposition 218 requirements. If local agencies are to increase property tax revenue, they must have the ability to impose or increase assessments to those benefiting from infrastructure improvements. To accomplish this, new legislation or modifications to existing legislation is needed, such as modifying Proposition 218 to include services/utilities exemptions for storm drainage and flood management.

The supermajority voting requirement imposed by Proposition 218 was lowered for school bonds in November 2000 to 55%. Between 2001 and 2004 \$20 billion in K-12 school bonds were passed in addition to over \$9 billion for community colleges. Over 60% of the approved bonds passed with margins between 55% and 66%. This indicates that reducing voting requirements for even a subset of water projects, such as storm drains and flood management, may have a significant effect on local financing options.

Expand Project Scope (Public Benefits)

Many water management projects include ecosystem services and other public benefits. These beneficiaries typically do not pay for the project and may not factor into relevant cost-benefit analyses. Including other public and environmental benefits would increase the pool of potential funding sources to draw from.

This has particular appeal for flood management projects. Historically, flood management projects have been developed as single purpose projects. These projects were funded by, and any repayment obligations were the responsibility of, the sponsoring flood management agency. For existing projects, flood management agencies could identify other project purposes or beneficiaries that have not contributed any funds for the capital improvements or provided for any share of maintenance costs and have them pay for these benefits. Other benefits or purposes that have avoided cost allocations could include, but are not limited to, water supply, recreation, fisheries, and navigation. This potential revenue may not be an obligation of the source; but it can assist in paying for benefits that could lower the cost burden on the flood management agency.

Other habitat and ecosystem benefits could be included on utilities balance sheets to expand the capacity to raise capital. This could significantly benefit smaller communities by including broader public and ecosystem benefits of projects.

Demand for Financing - TBD

Financial Strategies - TBD

IWM Investment Categories

The purpose of this section is to provide categories for effectively apportioning and allocating State government investment that works for [more generalized] State policy-making as well as [more project-specific] local and regional scales. Through intensive collaboration with the Update 2013 Finance Caucus, the investment categories presented below helped participants towards a common understanding of potential investments and an effective role for State government. This approach was useful for aligning funding and finance planning processes across over 2,300 local, State, and federal government agencies, each with its own planning processes and scales.

Update 2013 provides a more comprehensive approach to State IWM funding and finance compared to historical and current practices of prioritizing activities and projects by a combination of funding earmarks and a project's readiness for construction.

| Innovation |
|---|
| Governance of State IWM Improvements |
| Planning and Public Engagement Improvements |
| Information Technology (Data and analytical tools) |
| Government agency alignment improvements |
| Water Technology (Research, development and implementation incentives) |
| |
| Infrastructure (Human and Ecosystem) Implemented at the following scales |
| Local |
| Groundwater basin |
| Watershed |
| Regional |
| Interregional |
| State |
| Interstate |
| International |
| Tribal |

Chapter 2 – California Water Today describes existing local, State, and federal IWM spending and debt levels.

Currently, projects that tend to be most implementable, most consistent with priorities of a particular funding source or that happen to be at the front of the queue when money becomes available are often not linked to multi-faceted strategic objectives. The approach used for Update 2013 promotes proactive planning and prioritization of activities to drive future investment decisions and funding. See *Chapter 7 – Finance Planning Framework* for a description of finance categories and strategies including general obligation bonds, fees, taxes and public private partnerships.

Two primary categories of investment are innovation and infrastructure.

Infrastructure includes structures and facilities that support human activities, but it also includes green infrastructure (i.e such as wetlands, riparian habitat and watershed systems). Innovation includes the nonstructural improvements such as development of new analytical tools. Both categories may include the capital cost of constructing a facility or restoring habitat and the long term operation and maintenance costs which have often been an afterthought to implementation and not adequately financed over their useful life.

Innovation and infrastructure are further broken down into investment categories (again, for State government policy-making purposes) as shown in the adjacent sidebar. In addition to the categories of investment shown above, there are many resource management and administrative tools included in Update 2013.

IWM Finance Prioritization Methods

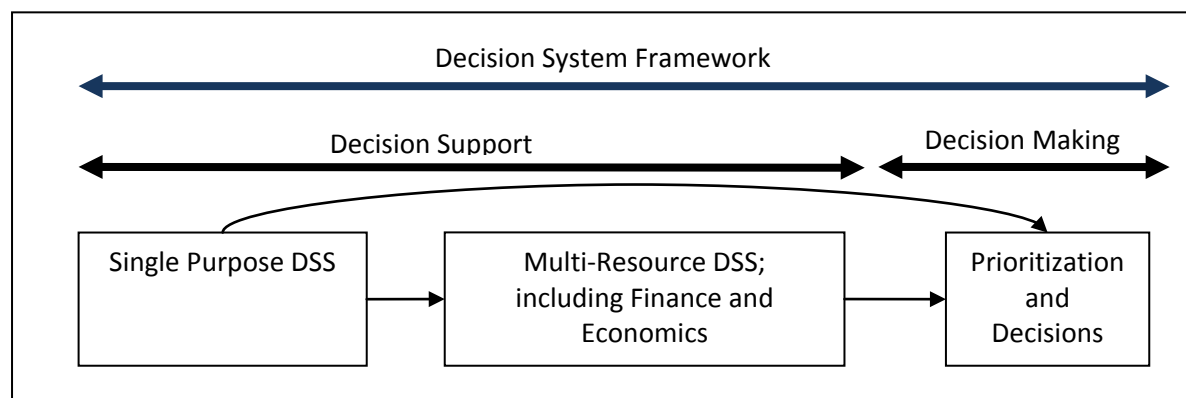
Overview

The purpose of this section is to help prioritize future State government IWM funding and finance decisions by specifying prioritization criteria and proposing a future decision support tool for assessing trade-offs. California faces tough decisions and trade-offs to allocate increasingly scarce funds to support integrated water management. Water management must compete for financial resources against a myriad of other infrastructure demands. When investment needs exceed existing available funding levels, it becomes increasingly important for decision makers to prioritize new water projects. The proposed finance decision support system summarized below is described in more detail in Chapter 6 – *Integrated Data and Tools*.

A consistent and understandable framework for displaying important costs, benefits, and other impacts of potential projects can help inform these decisions. A Decision Support System (DSS) is a general term for a computer-based approach to provide structured and consistent information for decision making. When options are numerous, interrelated, and have complex effects, decision makers need to be able to screen the options, eliminate those that are clearly inferior, and identify the smaller number that warrant further consideration and analysis. Both the screening step and the detailed analysis step can be greatly assisted by a DSS.

Water management decisions typically involve some type of collaborative process. For the purposes of this chapter, the decision process can be decomposed into two fundamental components, decision support and decision making, illustrated in figure XX. Decision support involves consideration of the entire system and how (or if) a potential project nests within existing infrastructure and policies. Decision making requires additional information such as selection criteria, availability of funds, and project costs and benefits. The decision making process typically results in some type of ranking of alternatives, whereas the decision support process evaluates how a project nests within a system.

Figure XX Water Management Decisions and Prioritization Methods



Prioritization Methods for IWM Projects

There is an important distinction between the decision support information, including economic and financial information, that a DSS would provide and the actual process of using that information to make decisions. There is a gap in most decision frameworks between the last steps (where a DSS is integrated with financial information) and where a prioritization method is applied. The informational role of a DSS is essential for evaluating projects and how they affect the broader water system, but the DSS does not prioritize projects, screen projects, or make final decisions.

Prioritization can be defined as the process of selecting a set of potentially desirable projects (i.e., screening out projects that are clearly inferior or infeasible) and then ranking those that pass the screening. Both the screening and the ranking are based on defined criteria and analysis supported by the DSS and other information. Prioritization can be accomplished through quantitative decision tools or by less formal group decision processes. Some examples of prioritization methods include:

- Voting
- Multi-agent decision analysis
- Delphi method (consensus or recommendations of an expert panel)
- Stakeholder meetings
- Negotiations
- Quantitative metrics such as benefit-cost ratio or cost-effectiveness
- Project-specific guidelines and scoring criteria
- Matrix analysis using objective and subjective scoring of projects according to a set of criteria

Prioritization criteria are based in decision science methods. Decision science typically incorporates quantitative and qualitative data into a decision making framework by specifying criteria to evaluate alternatives. A second step provides a method or algorithm to identify desirable outcomes, and ranks results. Decision science requires and facilitates stakeholder involvement to design the framework and place relative importance on the competing factors that affect decision making.

Prioritization Conclusions and Recommendations

Financial decisions about projects and programs should be based on analysis of how they perform and how they integrate into the existing system. A comprehensive analysis of how projects fit into the existing system requires the best tools and data available to decision makers. The Department has begun a process to investigate possible decision support tools and approaches that will inform stakeholders and decision makers. At this early stage, the intent is to develop a DSS that is relatively easy-to-use, is based on the best available data and models (or appropriate approximations of them), and can be used to support rapid screening and prioritization of projects.

Summary of Key Findings and Messages

The purpose of this section is to shape future State government IWM funding and finance decisions by observing, recording and synthesizing important and recurring messages. These messages also provide the basis for the finance objective and recommendations in Chapter 8 – Implementation Plan. The information in this section was derived from data, information and stakeholder discussions that emerged through the Update 201 planning process. It represents a significant step forward in the comprehensive understanding of complex finance mechanisms that, over time, were created in a disintegrated fashion.

- Funding sources are diverse, complicated and each has a unique characteristics, applications

and costs

- Currently authorized G.O. bonds and federal funding comprised 2/3 of total IWM State spending in fiscal year 2011/2012. Current G.O. bonds will be fully allocated by the year 2018 and future federal funding is highly uncertain in terms of amounts and constructs (e.g. cost-sharing methods and their related requirements and flexibility to meet State IWM objectives)
- Very little of the total State IWM funding allows discretion or flexibility to adapt to changing priorities and opportunities
- Water and flood bond debt is at an all time high
- There are two basic sources of funding: taxes and fees
- For any given year, there are two main funding strategies, cash on hand and borrowing.
- Although water supply, flood control and ecosystem projects are managing a common resource (land and water) often in the same location, funding has been, and continues to be conducted in a manner that is not conducive to integrate or otherwise improve.
- Local investment was, and remains, the primary source of funding for water supply
- Federal investment has historically been the primary source of funding for flood management.
- Funding strategies and constructs change over time, but generally in an unpredictable and disintegrated manner.

Data Notes and Documentation

General Notes:

- (1) All data should be viewed as estimates of total IWM related expenditures. Reporting metrics vary by agency and over time, thus identifying IWM expenditures requires some subjective assumptions. See notes.
- (2) This is an IWM planning exercise, not a State budgeting activity
- (3) 2010 Dollars using GDP-IPD

USBR:

- (1) Available at: <http://www.usbr.gov/budget/>
- (2) Reference "Summary by Project" Table (table number varies across years)
- (3) Data include all CA projects, covering portions of the Mid-Pacific and Lower-Colorado Regions
- (4) Some expenditures are "agency-wide," such as "policy and admin." These are allocated proportionally to all USBR regions and, consequently, to California (MP and LC regions).
- (5) CVP expenditures are line-items in each budget

State:

- (1) Provided by DWR
- (2) Funding source does not dictate or constrain use; thereby creating flexibility to invest in multiple categories of IWM activities
- (3) IWM is defined as activities that generate the following types of benefits: Drought preparedness; Energy benefits; Water quality; Water supply and supply reliability; Flood damage reduction; Recreation.
- (4) Includes 29 State agencies, IWM related expenditures
- (5) SWP expenditures identified from Bulletin 132

Other Federal:

- (1) Available at:
http://www.whitehouse.gov/sites/default/files/omb/budget/fy2012/assets/calfed_year_by_year.pdf
- (2) Includes NRCS, NOAA, Geological Survey, F&WS, EPA

Cities:

- (1) Available at: http://www.sco.ca.gov/ard_locrep_cities.html
- (2) Includes water, sewer, and disaster preparedness expenditures
- (3) "Disaster Preparedness" expenditures are included in the data summary. This includes an increase in flood-related expenditures following Katrina and also includes defense related-expenditures following 9/11. This is a small component of total city IWM expenditures.
- (4) "Streets, Highways, and Storm Drains" expenditures are excluded since the large component is streets and highways.

Counties:

- (1) Available at: http://www.sco.ca.gov/ard_locrep_counties.html
- (2) Includes flood control, soil, and water conservation expenditures

Special Districts:

- (1) Available at: http://www.sco.ca.gov/ard_locarep_districts.html
- (2) Includes water enterprise, food control and water conservation, drainage and drainage maintenance, and levee and maintenance

USACE:

- (1) Available at: <http://www.usace.army.mil/Missions/CivilWorks/Budget.aspx>
- (2) California-specific expenditures only
- (3) California-specific data are not available for FY01-FY06, total US expenditures are allocated proportionally as an approximation

USDA Forest Service:

- (1) Available at: <http://www.fs.fed.us/aboutus/budget/> (use Allocation to Region, Station, Areas Budget Table)
- (2) Region 5 (California only)
- (3) Includes wildlife and fish habitat management, vegetation and wildlife management

FEMA:

- (1) Available at: <http://www.fema.gov/about/budget/>
- (2) Includes flood mapping, flood mitigation, flood insurance, and ARRA flood grants for California

Historical Summary Notes:

Federal includes USBR, USACE, and EPA IWM Expenditures only. The following State agencies are included.

California Environmental Protection

General Government

Milton Marks "Little Hoover" Commission

Native American Heritage Commission

Legislative, Judicial and Executive

Resources Agency

Department of Boating and Waterways

Department of Conservation

Department of Fish & Game

Department of Forestry and Fire Protection

Department of Parks and Recreation

Department of Water Resources

General Obligation Bonds - Environmental Protection

General Obligation Bonds - Resources

Native American Heritage Commission

Payment of Interest on PMIA Loans - Resources

Energy Resources Conservation and Development Commission

San Francisco Bay Conservation and Development Commission

San Gabriel and Lower Los Angeles River and Mountains Conservancy

San Joaquin River Conservancy

Sacramento-San Joaquin Delta Conservancy